

MCFRS COMMUNITY RISK ANALYSIS AND STANDARDS OF COVER

G. Compliance Methodology

Performance Evaluation and Compliance Strategy

Expectation:

Upon assessment of MCFRS's ability to achieve performance goals, steps should be taken to improve upon current response capabilities.

Response:

Continue efforts to maintain and expand current staffing levels as well as proceeding with Capital Improvements outlined in the Fire/Rescue Master Plan. A difficult economic environment has created the need to re-align some resources to allow for the expansion of service to meet the needs of the community while operating under financial restraints. To move toward meeting the MCFRS' response time goals for ALS incidents and structure fires, MCFRS has taken and plans to pursue further actions, programs, and initiatives between FY10 and FY12.

New fire stations in Germantown

Two new fire stations have opened in Germantown, one on the west side and one on the east side of town⁶; thus increasing the number of engines in this high-growth area by two. This will increase the depth of resources in the up-county and allow faster response; thus increasing the percentage of residential fires confined to the room of origin.^{liv}

Phase 2 of four-person staffing

Implementation of Phase 2B of the MCFRS' four-person staffing plan occurred in FY09, adding a fourth person on a designated group of four down-county engines (i.e., E706, E712, E718, E719). Four-person staffing allows the first-arriving engine to begin interior fire attack immediately without having to wait for another unit to meet State "2 in – 2 out" requirements. Quick interior attack leads to achievement of a higher percentage of fires confined to the room of origin and reduces the number of resources required for mitigation, thus preserving capacity for additional incidents.^{lv}

Establish an interim station in the Travilah area

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Until the proposed permanent Travilah Fire Station is built and opened in FY13 (anticipated), MCFRS is recommending the establishment of an interim station on the PSTA property housing an engine and EMS unit staffed 24/7. These units would address a significant call load within the Travilah/Traville/Fallsgrove area and increase the depth of fire suppression and EMS resources in the up-county. The additional units would allow faster first-due engine and EMS response to the Travilah/Traville/Fallsgrove area and allow faster assembly of suppression forces (i.e., box alarm assignment) within the up-county area as a whole; thus increasing the percentage of fires confined to the room of origin.^{lvi}

Reduce response time

Response time to residential fires can be reduced county-wide by taking steps to reduce ECC call-processing and dispatch time and by improving turnout time. Fire Chief's General Order 09-19 was recently issued concerning modification of the pre-alert for full-assignment fires that is expected to reduce call processing time by 30 seconds and provide critical information to the field more rapidly. Upgrades to the County's communications system, including the computer aided dispatch (CAD) system and station alerting system, is being planned (ref. - Public Safety Systems Modernization Plan, July 2009) and will lead to faster ECC call-processing and dispatch which will improve overall response time.^{lvii}

Continue implementation of 4-person staffing

Partial implementation of Phase 3 (i.e., Phase 3A) of MCFRS' four-person staffing plan is planned for FY10 utilizing federal SAFER grant moneys. Phase 3A will add a fourth person to a designated group of three engines. Phase 3B - to be implemented in a future fiscal year (potentially FY12), will add a fourth person to five additional engines to complete Phase 3. Four-person staffing of engines allows the first-arriving engine to begin interior fire attack immediately without having to wait for another unit to meet "2 in – 2 out" requirements of the Maryland Occupational Safety & Health Administration. The fourth person provides improved occupant and firefighter safety and the ability to deploy hose lines and achieve rapid rescue of persons trapped by fire.^{lviii}

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Improve water availability

Through recently initiated efforts to improve Insurance Services Office (ISO)-issued fire protection ratings for Montgomery County (i.e., ISO Class 4 in hydranted areas and ISO Class 9 in non-hydranted areas), MCFRS will be taking steps to increase the number of ISO-certified static water supply sources throughout areas lacking hydrants. This will involve the installation of strategically located underground cisterns as well as the installation of dry hydrants and suitable access to drafting sites (e.g., lakes, ponds, streams).^{lix}

Compressed-air foam

Upon completion of the deployment of the new fleet of compressed-air foam system (CAFS) pumpers countywide, MCFRS will realize faster control and extinguishment of fires. CAFS results in a 40% reduction in the weight of any attack line which allows faster advancing of the attack line plus faster knockdown of the fire due to CAFS dual action of cooling and smothering the fire.^{lx}

Retrofit un-sprinklered residential high-rises

To address the county's 84 high-rise and mid-rise apartment buildings lacking sprinkler systems, MCFRS will continue advocating for legislation requiring sprinkler retrofitting. The MCFRS Code Enforcement Section will also continue working with the Apartment and Office Building Association to encourage building owners to voluntarily install sprinklers to increase occupants' safety and to realize savings on insurance premiums.^{lxi}

Modification of ALS Call Processing and Dispatch

Fire Chief's General Order 09-07 was implemented in 2009 to modify the procedure for ALS call processing and dispatch. ALS calls were designated as ALS-1 (requiring one ALS provider) or ALS-2 (requiring two ALS providers). ALS-2 calls are the most critical life-threatening emergencies – Echo and certain Delta calls – where two paramedics are required. With ALS-2 calls, ECC personnel do not have to wait until the conclusion of the time-consuming EMD protocol to dispatch ALS units; thus improving call processing/dispatch time as well as overall response time. With ALS-1 calls, ECC personnel must wait until the conclusion of the EMD protocol to dispatch ALS units.^{lxii}

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Reduction in time taken to process 9-1-1 calls and dispatch units

- Resources and procedural changes that are needed to accomplish this reduction include:
- Additional ECC personnel
- Modification of time-consuming State and County protocols and procedures that unnecessarily delay call-processing and dispatch
- Upgrades to the County's communications system, including the computer aided dispatch (CAD) system and station alerting system, are being planned (ref. Public Safety Systems Modernization Plan, July 2009) and will lead to faster ECC call-processing and dispatch as well as faster turnout time.^{lxiii}

Reduction in turnout time

Resources and procedural changes that are needed to accomplish this reduction include:

- Development of turnout time goals that balance speed and safety
- Strict supervision by MCFRS battalion chiefs, station commanders, and unit officers to ensure personnel are meeting turnout time goals
- Strategic use of pre-alerts that may result in faster turnout times
- Replacement of the station alerting system^{lxiv}

Reduction in travel time

Resources and procedural changes that are needed to accomplish this reduction include:

- Strategically placed stations – to be accomplished by adding new stations and, where appropriate, relocating existing stations
- Full implementation of the four-person staffing plan and 1 and 1 ALS model
- Deploying additional apparatus/staff and deploying them strategically
- Continued community outreach campaign (i.e., “Hear Us, See Us, Clear for Us” campaign initiated in FY06) that encourages motorists and pedestrians to yield right-of-way to responding MCFRS vehicles
- To the greatest extent possible, use of response routes that lack traffic calming devices^{lxv}

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Community Outreach

Continue fire prevention and risk reduction educational programs focused on targeted populations (e.g., elderly and immigrant populations) as well as long-standing programs having a more general application. All members of the fire-rescue service have responsibility to reduce community risk. Improvements are being planned for logistics and coordination of the door-to-door outreach program to increase efficiency.^{lxvi}

Implementation of recommendations concerning senior citizen fire safety

Emphasis will be placed on implementing recommendations of the Senior Citizen Fire Safety Task Force. A number of projects have begun to raise awareness among people who provide direct service and support in senior's homes to identify people who may be at a greater risk and may need assistance installing smoke alarms or reducing risk in other ways.^{lxvii}

Achieve survey results where residents rate the department's education efforts as effective.

MCFRS will increase the fire safety knowledge and awareness of County residents to a defined, acceptable level appropriate to risks for the targeted residents by:

- Using the existing Safety in Our Neighborhood program of door-to-door visits
- Increasing marketing for the door-to-door visits to include news stories, social networking, and more scheduled and focused neighborhood visits
- Using the MCFRS web sites and public service announcements to make information available
- Training and working directly with social care-givers who regularly interface with people of high risk and supporting them with materials and technical support
- Using volunteers (e.g., MCFRS Mobile Volunteer Corps, Community Emergency Response Teams) to deliver educational and outreach programs
- Focusing efforts at educating family and community care-givers for those at risk
- Employing benchmark efforts proven successful in Europe and Pacific Rim nations to increase knowledge and awareness of community, home, and personal risk^{lxviii}

EMS Data Collection

The MCFRS EMS Section will continue gathering data to demonstrate utilization of critical cardiac skills and the impact to the community. Patient outcome data will be gathered to demonstrate the effectiveness of these cardiac skills and will be analyzed to make adjustments in

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the Emergency Medical Dispatch (EMD) process to further focus on deployment of best suited resources.

Constant Improvement Strategy

Expectation:

MCFRS is to develop Performance Plans, which begins with the Headline Department Performance Measures, which will gauge how well customer results are being achieved, as well as the department's operational efficiency. The Performance Plan then provides a succinct analysis and an action plan, including a budget, for improving performance - as measured by the trend lines of the Headline Department Performance Measures.^{lxix}

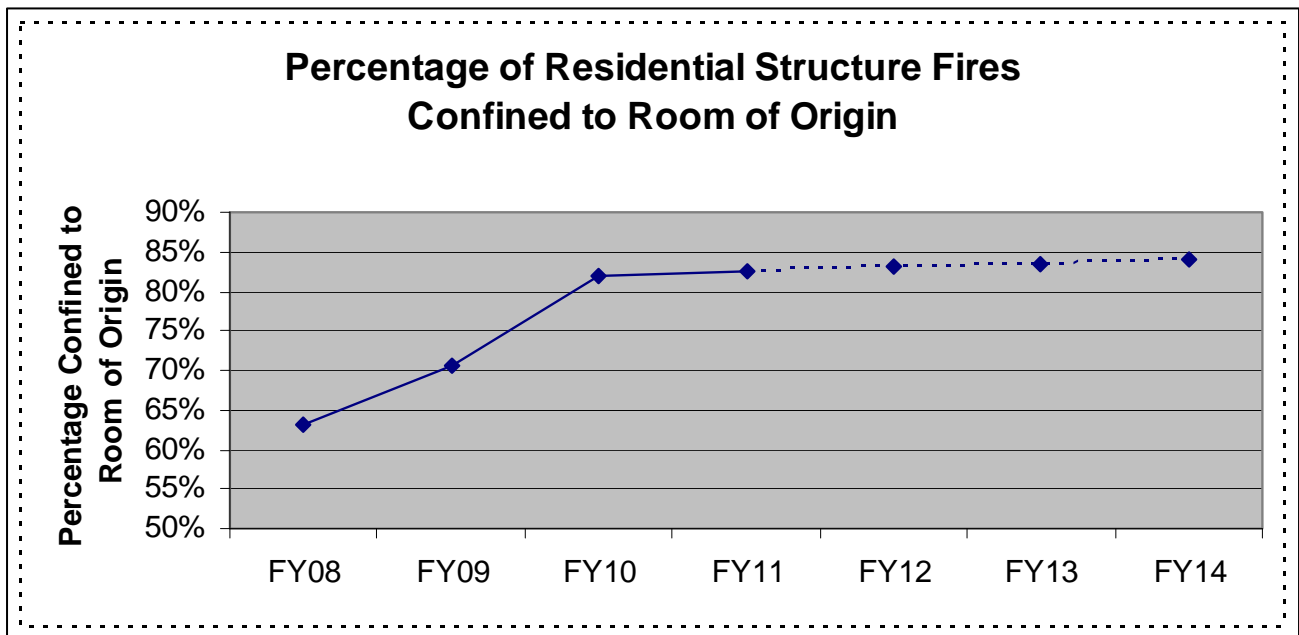
Response:

MCFRS has implemented six Headline Performance measures to evaluate the effectiveness of service which include: 1) Confining Residential Fire to the Room of Origin 2) Response Time Goals to ALS Incidents and Structure Fires 3) Residential Fire Deaths and Injuries per 100,000 Residents 4) Percentage of Strategic Recommendations Addressed Concerning Accreditation Follow-up Requirements 5) Percent of Montgomery County Residents Surveyed who rate MCFRS' Injury and Fire Prevention Education Services Effective 6) Pre-Hospital Cardiac Care.^{lxx}

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Confining Residential Fire to Room of Origin

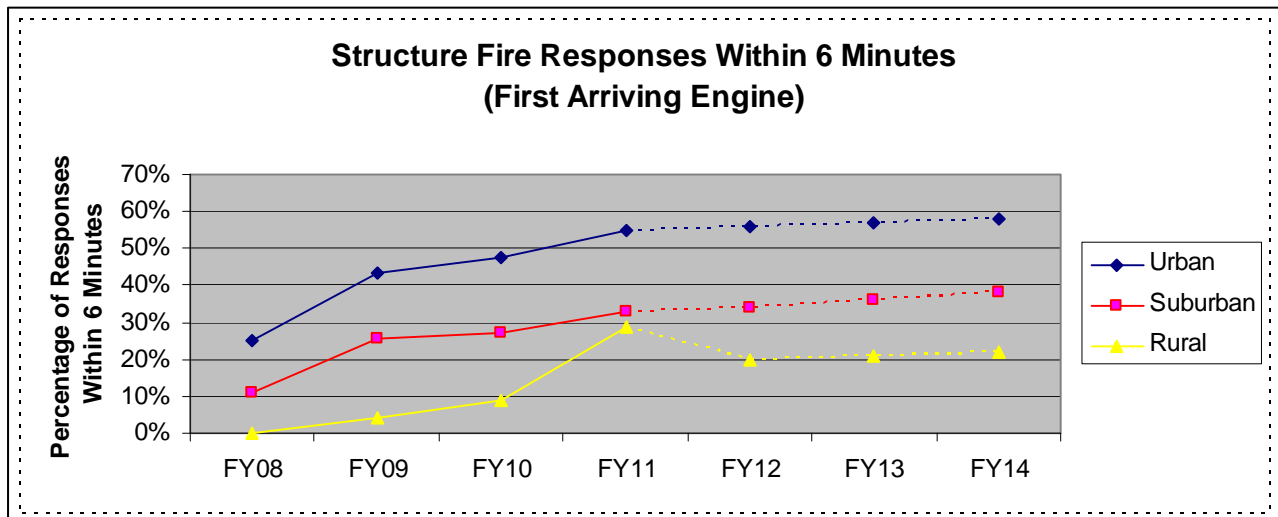
MCFRS has implemented the short term goal of confining residential fires to the room of origin in 80% of all instances.^{lxxi} The solid line in the below graph presents actual historical data for FY08-11. The dashed line indicates projected performance based on the trend as well as derived benefits of programmatic actions, initiatives, and limited resource enhancements to be implemented.^{lxxii}



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Response Time to ALS Incidents and Structure Fires

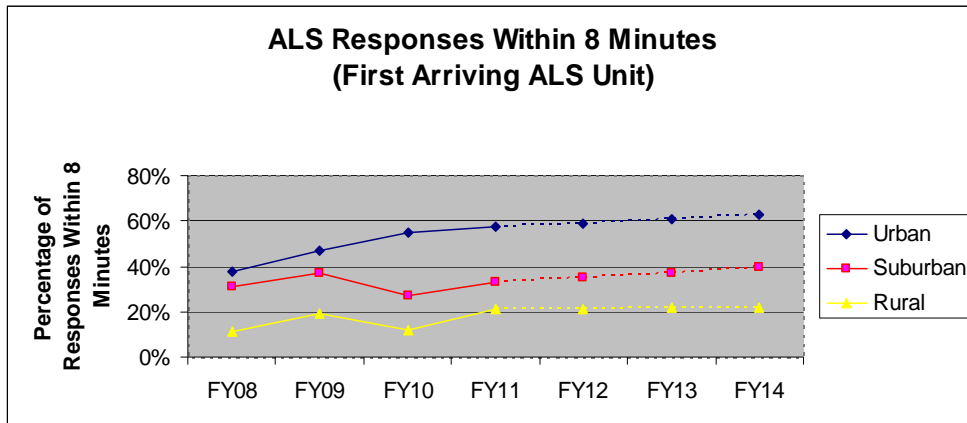
The response time goal for first-arriving engine to structure fires is 6 minutes to 90% of fires in the Urban Zone, 75% of fires in the Suburban Zone, and 50% of fires in the Rural Zone and to contain the fire to the room of origin in 80% of residential fires^{lxxiii}. The response time goal for a BLS first-responder unit to an ALS incident is 6 minutes and the goal is 8 minutes for arrival of an ALS unit. BLS first responders are trained, certified, and equipped to perform basic life support services, including life saving actions such as rescue breathing, cardiopulmonary resuscitation (CPR), and use of automated external defibrillators (AEDs)^{lxxiv}. An ALS unit, in the context of this performance measure, is a Medic Unit or an ALS first-responder apparatus (AFRA) such as an engine with a firefighter-paramedic and ALS kit on board. ALS units provide the highest level of pre-hospital patient care based on advanced training of personnel and specialized equipment carried.^{lxxv}



The graph above indicates response time performance relating to structure fires. Solid lines indicate actual historical data for FY08-11, and dashed lines indicate projected performance based on trends as well as derived benefits of programs, initiatives, and limited resource enhancements to be implemented.^{lxxvi}

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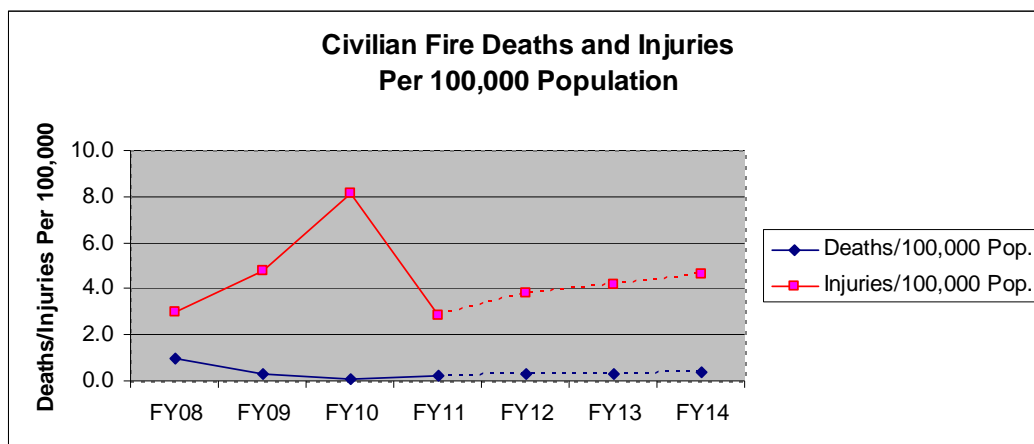
The graph above indicates response time performance relating to advanced life support (ALS) incidents. Solid lines indicate actual historical data for FY08-11, and dashed lines indicate projected performance based on trends as well as derived benefits of programs, initiatives, and limited resource enhancements to be implemented. It is important to note that this graph does not reflect response time of basic life support (BLS) first-responders (i.e., EMT-Bs aboard an ambulance, engine, aerial unit, rescue squad, or other unit), often arriving before ALS units.^{lxxvii}

Residential Fire Deaths and Injuries per 100,000 Residents

The goal of this performance measure is to minimize the number of civilian fire related injuries and deaths in residences.

The graph below indicates the annual number of past and projected civilian fire deaths per 100,000 residents (blue line) and past and projected number of civilian fire-related injuries per 100,000 residents (red line).^{lxxviii} The civilian fire death rate between FY08 and FY11 has dropped since a high of 1.0 per 100,000 residents in FY08 and remained low (≤ 0.2 per 100,000) over the FY09-11 time frame. The civilian fire injury rate has been volatile between FY08 and FY11, rising during FY09 and FY10 and then plummeting in FY11. It is anticipated that both fire death rate and fire injury rate will increase gradually during the FY12-14 time frame due to the County's increasing senior population which has historically experienced a high rate of fire casualties in proportion to their numbers.

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Implement Strategic Recommendations acquired from previous Accreditation site visit

To maintain its accreditation, MCFRS must address the “strategic recommendations” provided by the Center for Fire Accreditation International (CFAI) Peer Assessment Team that performed an on-site evaluation of the department in 2012. The list below summarizes and consolidates these recommendations. MCFRS must show progress in its annual compliance report to the CFAI Board of Directors to achieve its accreditation status.

1. It is recommended that the department takes the necessary internal actions to make its accreditation process be a process and not a project.
2. It is recommended that the department regularly utilize the standards of cover and incorporate its language into the master planning process.
3. It is recommended that the department enhance its utilization of population density analysis to include all necessary categories as defined by CFAI to develop total response time standards.
4. It is recommended that the agency create and analyze smaller geographic areas (fire demand zones) to properly assess similar risks.
5. It is recommended that the department develop five year benchmark performance objectives and actual baseline performance statements, in the 90 percent fractal, for each emergency response discipline i.e., fire suppression, emergency medical services (EMS), hazardous materials, technical rescue, aviation rescue and fire fighting and the bomb squad program, in their associated fire and non-fire risk categories, and report the statements in a format recognized by CFAI.

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6. It is recommended that the department fully assesses contributing factors to fire and non-fire risks to develop effective standards of cover strategy.
7. It is recommended that the department establish and publish a formal and uniform process to track program goals.
8. It is recommended that the department seek ways to increase staffing to meet the program goals and objectives for the inspection of buildings as outlined in the Montgomery County Fire Safety Code, Section 22-23.
9. It is recommended that the department examine a staffing model for the EMS Section to enhance supervisory and managerial functions of field personnel.
10. It is recommended that the department update, document and make current standard operating guidelines for its technical rescue, aviation rescue and fire fighting and human resources practices.
11. It is recommended that the department conduct and document a formal appraisal process, at least annually, for its fire suppression, fire prevention and life safety, technical rescue, hazardous

Pre Hospital Cardiac Care

The goal of this MCFRS performance measure is to have 90% of EMS-identified ST-segment elevation myocardial infarction (STEMI) patients receiving balloon angioplasty in a cardiac catheterization lab within 90 minutes of arrival at the hospital.

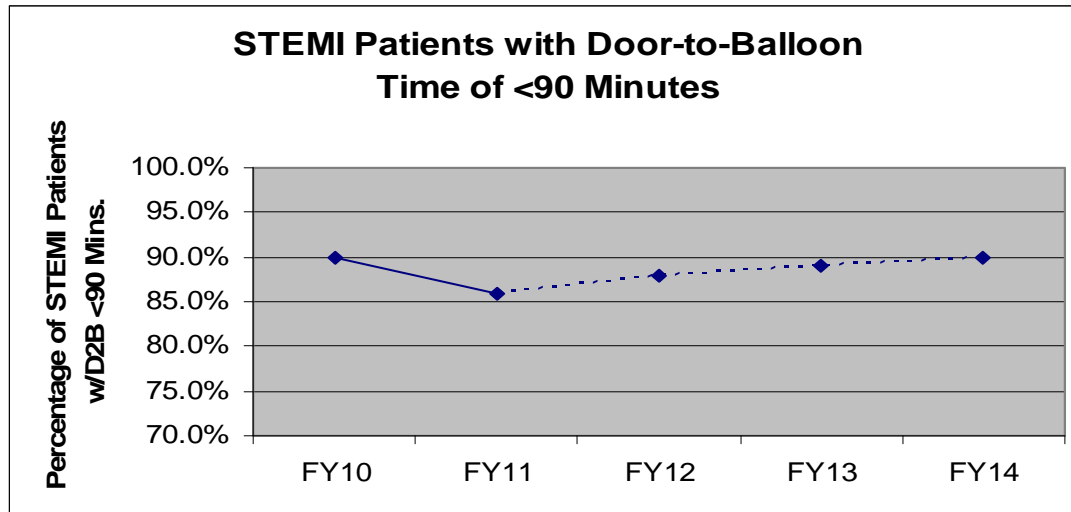
Door-to-balloon (“D2B”) time is a measurement in emergency cardiac care, specifically in the treatment of ST-segment elevation myocardial infarction (STEMI). The interval starts with the patient's arrival in the emergency department and ends when percutaneous coronary intervention (see description below) has been performed in the cardiac catheterization lab. Because of the adage that “time is muscle” (i.e., delays in treating a myocardial infarction increase the likelihood and amount of cardiac muscle damage), American College of Cardiology/American Heart Association guidelines recommend a D2B interval of no more than 90 minutes.

Percutaneous coronary intervention (PCI) is performed by threading a slender balloon-tipped tube – a catheter – from an artery in the groin to a trouble spot in an artery of the heart (i.e., percutaneous Trans luminal coronary angioplasty – PTCA, or “balloon angioplasty”). The balloon is then inflated,

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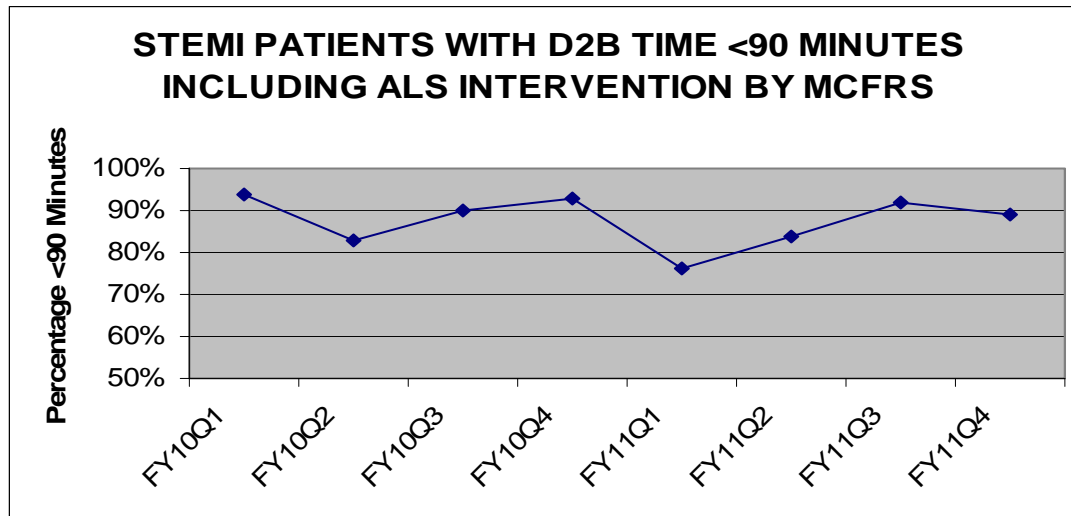
compressing the plaque and dilating the narrowed coronary artery so that blood can flow more easily. This is often accompanied by inserting an expandable metal stent to prop open arteries following PTCA.

The MCFRS has in place the components to provide state-of-the-art pre-hospital cardiac care at the local level. Additionally, the Maryland Institute of Emergency Medical Services Systems (MIEMSS) is providing State direction in the designation of cardiac treatment centers, including four in Montgomery County. This combination of EMS direction, experience, and knowledge, partnered with a local network of cardiac care specialty centers, places the MCFRS in a solid position to provide fast and effective cardiac care to the residents of Montgomery County.



The solid line in the above graph represents actual historical data for FY10 and FY11, the initial years for which this performance measure has been tracked and reported to the County’s Chief Administrative Officer through the “CountyStat” reporting mechanism. The dashed line indicates projected performance based on the average of previous quarters (see 2nd graph below) as well as derived benefits of technology enhancements that are being implemented (see “Lifenet” below).

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MCFRS EMS personnel activated the ST-segment elevation myocardial infarction (STEMI) response system 167 times during FY11. For patients who were transported by MCFRS and received primary PCI in a Montgomery County hospital, 91% - on average - had a D2B time less than 90 minutes. This percentage achieved is well above the required 75 percent necessary for hospitals to maintain their waiver to perform PCI in Maryland.

It should be noted that FY11 data combines “traditional” D2B times as well as data from the newly-implemented “Lifenet®” program which began in May 2011. The Lifenet technology allows EMS personnel on scene of a STEMI incident to transmit the first diagnostic EKG directly to the receiving hospital where it is read immediately by members of the STEMI response team. This allows for a more efficient response by the hospital staff and will decrease D2B time for the patient. With the use of the Lifenet technology, measuring the success of medical intervention for STEMI patients could now include an EMS-to-Balloon (“E2B”) time. This measurement begins at the time of the first qualifying EKG performed by EMS personnel and ends under the same criteria as D2B times.